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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,930	09/26/2003	Ulrich Bonne	H0004978(1100.1208101)	8299
128 7590 10/17/2007 HONEYWELL INTERNATIONAL INC. 101 COLUMBIA ROAD P O BOX 2245 MORRISTOWN, NJ 07962-2245			EXAMINER MOSS, KERI A	
			ART UNIT 1797	PAPER NUMBER
			MAIL DATE 10/17/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/671,930	BONNE ET AL.	
	Examiner	Art Unit	
	Keri A. Moss	1797	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 and 22-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 22-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

### DETAILED ACTION

1. Applicants' amendment filed July 30, 2007 is hereby acknowledged. Claims 1-10 and 22-30 are pending.

### *Response to Amendment*

2. All rejections have been maintained.

### *Claim Rejections - 35 USC § 103*

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims **1-2, 5-6, 22-24, 28-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonne (USP 6,393,894). Bonne discloses a fluid sensor comprising a concentrator (Fig. 6 part 124); a separator connected to the concentrator (Fig. 6 part 126); a phased heater array having a first plurality of heating elements situated in the concentrator (Fig. 7 parts 168a-d) and a heating element situated in the separator (Fig. 7 part 170); a ratio control mechanism (Fig. 7 part 180) for changing the ratio of concentrator heating elements relative to separator heating elements (Fig. 8); the ratio control mechanism and the controller connects to the phased heater array (Fig. 7) and a first detector connected to the separator (Fig. 7 part 164). Figure 8 shows that the ratio control mechanism (part 180) and the controller (part 130) change the ratio of active concentrator heater elements to separator heating elements from 1:1 to 0:1. A micro

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discharge mechanism is located proximate to the first detector (Fig. 9 outlet below part 264; column 4 lines 14-19) and connected to the controller (Fig. 9). It is inherent that the sensor in Bonne comprises a processor connected to the detector as the detector cannot be read without one. Since a processor is inherently connected to the detector, it is also connected to the concentrator, separator, micro discharge mechanism and anything else connected directly or indirectly to the detector. It is also inherent that the processor comprises switches and control logic. A controller (Fig. 6 part 130) is connected to the concentrator and separator and is capable of changing the ratio of concentrator heating elements to the separator heater element (Fig. 8). The concentrator may be a pre-concentrator as there may be an unlimited number of phased heater arrays (Fig. 8). The heater elements apply heat in a sequential phased manner to the concentrator (Fig. 3). The detector may be a thermal-conductivity detector (Fig. 6 part 128). A flow sensor is connected to the concentrator (Fig. 8; column 7 lines 19-30).

Bonne does not expressly disclose a plurality of heater elements in the separator. *In re Harza* 274 F.2d 669, 124 USPQ 378 (CCPA 1960) teaches that it is well settled that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. The prior art of *In re Harza* taught one rib whereas the claims at issue claimed a plurality of ribs. *Id.* at 381. In the instant case, Bonne teaches a single heater element in the separator whereas Applicant claims a plurality of heater elements. Bonne teaches that the separator heater element separates the constituent gasses into individual constituent components. The expected result of

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providing a plurality of heater elements is a more precise separation of the components. Therefore, it would have been obvious to one of ordinary skill in the art to increase the number of heater elements in the separator in order to have a more precise separation of components in the gas. In addition, it would have been obvious to one of ordinary skill in the art to plan how the concentrator and separator heating elements are to be arranged in the sensor prior to building it.

Furthermore, Bonne does not expressly teach a fluid sensor comprising a plurality of concentrator heater elements corresponding to a plurality of separator heater elements. The number of heater elements used by one of ordinary skill in the art is a result-effective variable. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) teaches that optimization of a result-effective variable is ordinarily within the skill of one in the art. A result-effective variable is one that has well-known and expected results. Varying the number of either separator or concentrator heater elements has the well-known and expected result of varying the final concentration of the desired compound or molecule. It would have been obvious to one of ordinary skill in the art to meet the number of heating elements required in claim 22 by modifying Bonne and selecting the number of concentrator and separator in order to obtain the desired concentration of the desired compound. Thus, it would have been obvious to have a corresponding number of separator and concentrator heater elements when the corresponding number obtained the desired concentration of the desired compound.

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5. Claims **3-4, 8-10 and 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonne, as described supra, in view of Kubisiak (USP 6,169,965). Bonne does not disclose a second detector or a flow sensor. Nor does Bonne teach a processor on a separate board from the concentrator, separator and phased heater array.

With regard to claims **3-4**, Kubisiak discloses a detector 210 (Fig. 4) and a flow sensor 222 (Fig. 4), both connected to a processor 430 (column 9 lines 43-53; Fig. 9) comprising switches (Fig 9) and control logic (column 10 lines 10-13). Detector 210 is used to measure fluid properties (column 7 lines 43-45), whereas 222 is used as a flow sensor (Column 7 lines 49-50). Kubisiak teaches that the flow sensor may be located upstream or downstream of the heating element (column 8 lines 61-65). An advantage of using the Kubisiak system is that the processor 430 uses the data from the heater and the sensors to determine phase lags between the signals as well as fluid properties such as pressure or temperature. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Bonne sensor structure with the teachings of using processor and switches of Kubisiak in order to control the timing of the activation of the different heating elements and to gain the additional advantage of determining the phase lag and fluid properties.

With respect to claims **8-10 and 25-27**, Bonne does not teach a sensor wherein the concentrator, separator and phased heating elements are on a separate board from the processor. Kubisiak discloses a system in which the heaters and sensors are on a

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board separate from, but connected via wire bonds to, a board containing the processor, switches and control logic. While it appears that Kubisiak does not separate the heating elements from the processor, it would have been obvious to one of ordinary skill in the art to make separate the heaters from the processor to prevent overheating of the processor.

### ***Response to Arguments***

6. Applicant's arguments filed July 30, 2007 have been fully considered but they are not persuasive. As discussed in the rejection above, the amended language adds limitations that are obvious in light of the prior art disclosures. Applicant's remaining arguments are reiterations of previous arguments and thus the Examiner's response to these arguments are maintained as of record.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keri A. Moss whose telephone number is 571-272-8267. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keri A. Moss  
Examiner  
Art Unit 1797

KAM 10/15/07

  
Jill Warden  
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